

manufacturers to be marvellously low. When we look into the matter we find that the chief difference between the manufacturer of America and the manufacturer at home is that, whether it be steam-engines, tools, agricultural machinery, or electrical machinery, the American invariably manufactures goods in large quantities to standard patterns, whereas we rarely do so here, at any rate to the same extent. Where we turn out articles by the dozen the American turns them out by the hundred. This difference in the extent to which an article is reduplicated is caused by the Americans having realised to a far greater extent than we have the advantage of standardisation of types of machinery. They have felt this so strongly that we find in America that work is far more specialised than it is here, so that a manufacturer as a rule provides himself with a complete outfit of machinery to turn out large numbers of one article. He lavishes his expenditure on special machinery to produce every part sufficiently accurate to dimension to secure thorough interchangeability; consequently the cost of erecting or assembling the parts is far less than it is here. One reason why the American manufacturer has been able to impose on his purchasing public his own standard types, whereas we have not been able to do so, is that very rarely in America does a consulting engineer come between the manufacturer and the user, whereas here it is the fashion for the majority of purchasers of machinery to engage a consulting engineer to specify and inspect any machinery of importance. By this I do not impute any blame to our consulting engineer; he considers the requirements of his client, and insists that they are to be adhered to as closely as possible; to him the facility of the production of articles in large quantities is of no moment. In America it seems to be understood by the purchaser that it is a distinct advantage to everyone concerned, both manufacturer and purchaser, that the purchaser should to some extent give way and modify his requirements so as to conform with the standard patterns turned out by the manufacturer. Although manufacturers all hope for this simplification of patterns, yet, for the reasons I have given, it will be some time before their hope is realised. But on other matters it is quite possible for manufacturers to combine, so as to obtain some standardisation of parts which they manufacture which will reduce costs and be of advantage to everyone concerned. Many years ago Sir Joseph Whitworth impressed on the world the importance in mechanical engineering of extreme accuracy, and of securing the accurate fit and interchangeability of parts by standard gauges. But in spite of his idea being so widely known and taught, how seldom it has been acted upon to the extent that it should be. We pride ourselves on having all our screws made of Whitworth standard, and yet how many of the standard bolts and nuts made by different makers fit one another? I myself have sat on a committee of this Association which was called together twenty years ago, with Sir Joseph Whitworth as a member of it, to fix on a screw gauge which would be a satisfactory continuation of the Whitworth screw gauge down to the smallest size of screw used by watchmakers.<sup>1</sup> It has taken all these years to carry out the logical outcome of Sir Joseph Whitworth's original idea, viz. the providing of standards to be deposited in care of a public authority to act as standard gauges of references. The complete interchangeability of parts which I have above referred to, and which is so desirable in modern machinery, can, of course, be obtained within the limits of one works by that works providing and maintaining its own standards to a sufficient degree of accuracy. But if the articles be such as watches or bicycles, motor-cars, &c., it is very desirable that all parts liable to require replacement should be made by all manufacturers to one standard of size, and in order that the gauges required for this purpose should all be exact copies of one another it is necessary that they should be referable to gauges deposited either with the Board of Trade or with some body specially fitted to verify them and maintain their accuracy.

Up to the present the Board of Trade has dealt with the simple standards of weight, capacity, and length, but in other countries National Standardising Laboratories have been provided, viz. by the Germans at their Reichsanstalt at Charlottenburg, and with the happiest results; here at last, through the exertion of the Council of the Royal Society, our Government has been moved to give a grant in aid and to cooperate with the Royal Society to establish a National Physical Laboratory for this country. About ten years ago Dr. Oliver Lodge gave

the outlines of a scheme of work for such an institution. Later Sir Douglas Galton, in his Presidential Address to this Association, called attention to the good work done by the Germans and the crying need that existed for such an institution in this country. The matter has since progressed. A laboratory is already in existence, and will soon be at work, at Bushy House, Teddington; it is a large residence, which was once occupied by the late Duke of Clarence and afterwards by the Duc de Nemours. It will make an admirable laboratory, as it has large and lofty rooms and a vaulted basement in which work can be carried on where it is important to secure the observer against changes of temperature.

The aims of a National Physical Laboratory have been well put forward by Dr. Glazebrook in a recent lecture at the Royal Institution, in which he points out how little science has up to the present come to be regarded as a commercial factor in our commercial world. The position of manufacturers of all classes must be helped and improved by a well-considered series of investigations on the properties of materials, measurements of forces, and by the careful standardisation of and granting certificates to measuring apparatus of all classes. Until the question is fairly faced and studied, few manufacturers realise how helpless individual effort or individual investigations must be when compared with comprehensive and continuous investigations which can be carried on by a National Laboratory so as to deal with the whole of each subject completely and exhaustively, instead of each investigation being limited by the temporary need of each manufacturer or user.

As an example Dr. Glazebrook showed how much has been done at Jena and afterwards at the Reichsanstalt in the development of the manufacture of glass used in all classes of scientific apparatus. The German glass trade has benefited enormously from these investigations. The microscopic examination of metals, which was begun by Sorby in 1864, has been much worked at by individual investigators in this country, but its further development, which is probably of enormous importance to arts and manufactures, is clearly the duty of a National Laboratory. We owe much to the investigations of the Alloys Research Committee of the Institution of Mechanical Engineers; but, again, this is work for the National Laboratory. As regards the measurement of physical forces how little is accurately known of the laws governing air resistance and wind-pressures, and the means of measuring them. Who can formulate with any certainty a law for the air resistances likely to be met with at speeds in excess of eighty miles an hour, the importance of which I have already noticed?

I have already alluded to the verification, care, and maintenance of ordinary standard gauges of accuracy. In this electrical age the accuracy of electric standards is of supreme importance.

These are only a few of the directions in which we can foresee that the establishment of a National Physical Laboratory will be of the greatest use and assistance to our country in enabling it to hold its own in scientific and engineering matters with its energetic rivals. The work has been commenced on a small scale, but it is to be hoped that its usefulness will become at once so evident and appreciated that it will soon be developed so as to be worthy of our country.

## NOTES.

AN expedition to Patagonia has been undertaken, under the auspices of the French Minister of Public Instruction, by M. A. Tournouër, whose purpose is to continue his study of the Tertiary mammals of South America.

THE last number received of the *Victorian Naturalist* states that, on July 19, Prof. Baldwin Spencer telegraphed from Alice Springs that his expedition had finished its work at Barrow Creek, where six weeks had been spent among the Kaitish and Umatjera tribes. Much valuable information relating to tribal organisations, totemic systems, &c., had been collected, and a fine series of photographs of sacred ceremonies, types of natives, &c., secured. The next main camp was to be formed at Tennant's Creek, about 150 miles further north (latitude 19° 30' S.). The members of the party were in excellent health, and well pleased with the results of their work.

<sup>1</sup> A report of this committee will come before you during this meeting.

A TELEGRAM from Berlin, through Reuter's agency, states that the Chinese astronomical instruments which the Germans carried off from Peking have now been placed in the orangery in Sans Souci Park. The instruments were packed in fifty-six cases, and weighed 26,000 kilogrammes. It is stated in the *Cologne Gazette* that the German Government authorised their purchase by the German Minister in Peking, after the offer of the Chinese Government to make the German Emperor a present of them had been declined.

THE governors of the Bristol General Hospital have been authorised by Sir William Henry Wills to draw on him up to 600*l.* for the provision of the Finsen apparatus for the treatment of lupus.

THE Philosophical Society of Glasgow will in future be known as the Royal Philosophical Society of Glasgow, the change taking place by the King's pleasure in respect of the near approach of the hundredth anniversary of the foundation of the Society.

A MISSION, consisting of three or four members, which will be under the direction of the Pasteur Institute, will start next month from France for the study of yellow fever. The sum of 100,000 francs has been voted by the Chamber of Deputies and the Senate towards the cost of the expedition. Operations will, if possible, be begun first in Brazil.

A SPECIAL COMMISSION to inquire into the subject of irrigation in India will meet in Simla in October under the presidency of Sir Colin Scott Moncrieff. The Commission, which will take evidence, examine proposed projects and formulate conclusions for the guidance of the Government, will visit the Punjab and the irrigation colonies in Sindh, Gujarat, the Deccan, Madras, the Central Provinces, and Upper India.

OWING to losses in the staff by death and retirement, the following appointments have been made on the Geological Survey of the United Kingdom. Dr. J. S. Flett has been selected to assist in the petrographical work of the Survey, Mr. J. Allen Howe and Mr. H. H. Thomas have been appointed geologists on the English staff, Mr. H. B. Muff on the Scottish staff, and Mr. W. B. Wright on the Irish staff.

REALISING, from the experience gained on the steamship *Lucania*, the value of the Marconi system of wireless telegraphy, the Cunard Company have decided to fit three more of their vessels with the same apparatus, viz. the *Campania*, the *Umbria* and the *Etruria*.

ON Saturday last, at Dundee, a granite monument was unveiled to the memory of James Bowman Lindsay, an investigator and inventor whose experiments in connection with wireless telegraphy and other scientific advances fifty years ago ought not to be forgotten. Sir William Preece, in unveiling the monument, remarked that Bowman Lindsay was long before his time. He was a prophet who would compare with any prophet, for in 1834 he wrote that houses and towns would in a short time be lighted by electricity instead of gas, and heated by it instead of coal, and machinery would be worked by it instead of by steam. Sir William Preece recollected that while he was attached to the electrical department of the Electric Telegraphs Company there came from Dundee to London a gentleman with a proposal to dispense with wires and communicate across water. He was attached to Mr. Lindsay, and he made all the arrangements and conducted all the experiments to illustrate his system in London. Unfortunately there was really no necessity for the invention in those days. An invention to be of use must come at the proper time. There must be the want for it, otherwise it died. This accounted for the fact that the system of wireless telegraphy which was now associated with the name of Lindsay had been neglected.

THE *Electrician* states that a proposal has been submitted to the municipal authorities at Rouen, by the chief of the fire department, for the utilisation of the tramway trolley wires in connection with the extinguishing of fires. All the principal thoroughfares of the town are provided with electric tramways, and the proposal is that pumps capable of being electrically driven should be installed in a number of suitable positions on the tramway route, to be switched on to the trolley wires, so that the pumps may be used as occasion necessitates. The proposal is said to have been favourably received, and is now under the consideration of the authorities.

AN experimental test of Prof. Koch's theory that bovine tuberculosis is not transmissible to human beings is, says the *British Medical Journal*, about to be undertaken under the direction of the Chicago Health Department.

AN earthquake shock was experienced at Inverness at 1.25 on Wednesday morning, and a lighter shock was also felt at four o'clock. A rumbling sound was heard during the first disturbance, and buildings were shaken to such an extent that windows rattled, objects were thrown down, a few chimney-pots were toppled over, and bells were set ringing. The movement appeared to travel from south to north, and reports of its occurrence have been received from Ava, Invergordon, Kildary, AIness, Newtonmore, Pitlochry, Loch Errich, Aberdeen, and other places.

A RESEARCH INSTITUTE has been opened by the Government of the Malay States at Kuala Lumpur, near Singapore. The medical department is fully equipped for special and general pathological work for the scientific study of clinical medicine, experimental physiology, and bacteriology. The chemistry department is arranged for both organic and inorganic research. There are, in addition, a well-stocked photographic department, facilities for biological research, and a good library. To members of scientific commissions visiting the Malay Peninsula the Institute affords an excellent opportunity for working up and preparing collected material. The Institute is open to all workers irrespective of nationality.

THE council of the University of Bordeaux is, with the approval of the French Minister of Public Instruction, founding a diploma in colonial medicine. The diploma, says the *Lancet*, will be granted, after keeping of terms and passing an examination, (1) to doctors in medicine of a French university; (2) to doctors in medicine of foreign universities; and (3) to foreigners having a medical diploma which is recognised as equivalent to a French doctorate of medicine. The examination will comprise (a) a clinical examination in tropical pathology; (b) a practical examination in the demonstrations and manipulations which have been gone through during the terms; and (c) a *viva voce* examination upon the subjects taken up during the course of study.

A CENTRAL NEWS telegram from New York, dated September 13, states that Mrs. Peary, the wife of the Arctic explorer, has arrived at Sydney, Cape Breton, from the Polar regions. She reported that she met her husband in the vicinity of Cape Sabine on May 6. Lieutenant Peary informed her that he spent the winter of 1900 at Fort Conger. This summer he marched northward to Independence Bay, but was then compelled to return to Fort Conger, where he will again spend the winter. A Reuter telegram states that the explorer had rounded the northern limit of the Greenland archipelago, and had reached latitude 83° 50'. He proposes to resume his attempts to reach the Pole in the spring of 1902.

THE twenty-ninth annual meeting of the American Public Health Association was to be opened at Buffalo on Monday last, and to continue in session, under the presidency of Dr. Benjamin



Lee of Philadelphia, until Saturday of the present week. The following is a list of the subjects down for discussion:—The pollution of public water supplies; the disposal of refuse material; animal diseases and animal food; car sanitation; etiology of yellow fever; steamship and steamboat sanitation; relation of forestry to the public health; demography and statistics in their sanitary relation; cause, prevention and duration of infectious diseases; public health legislation; cause and prevention of infant mortality; disinfectants and disinfection; national leper homes; dangers to the public health from illuminating and fuel gas; transportation of diseased tissue by mail; the teaching of hygiene and granting of Diploma of Doctor of Public Health; school hygiene; sanitary aid societies. In the Section of Bacteriology and Chemistry the following questions will be discussed: On standard methods of water analysis; bacteriology of milk in its sanitary relations; variations of the colon bacillus in relation to public health; and exhibition of laboratory apparatus and appliances for teaching hygiene.

A MEETING of the Yorkshire Naturalists' Union will be held at Cadeby (near Doncaster) from Saturday to Thursday, September 21–26, for a fungus foray in the neighbourhood of Melton, Sprotborough and Warmsworth.

THE Government of Victoria, Australia, requiring a director of agriculture, the U.S. Department of Agriculture has recommended for the post Prof. B. T. Galloway, chief of the Bureau of Plant Industry, and Prof. W. M. Hays, agriculturist of the Minnesota Experiment Station.

THE Allahabad *Pioneer Mail* states that a scheme is under consideration by the trustees of the Indian Museum to abolish, on the ground of expense, the office of the trustees and to allow the work to be managed by the librarian of the Museum. The scheme was formally brought before a meeting of trustees recently to be cast into shape before being forwarded to the Government of India for sanction. It is understood that Mr. Risley, chairman of the trustees, has already approved of the more important points of the scheme in consultation with the Revenue and Agricultural Department of the Government of India.

DR. DAVID STARR JORDAN, president of Stanford University, Dr. Barton W. Evermann, ichthyologist of the U.S. Fish Commission, and Dr. W. H. Ashmead, of the U.S. National Museum, who spent the summer in the Hawaiian Islands investigating on behalf of the U.S. Government the fishes and other aquatic resources of the Islands, have now returned to the United States, says *Science*. The other members of the party will return during the present month, except Messrs. L. E. Goldsborough and George Sindo, who will go to Pago Pago in the Samoan Islands to make a collection of the fishes found there. The investigations are reported to have been very successful. The fishery methods, laws and statistics were carefully studied and large and important collections of the fishes were made. Upwards of 300 species were obtained, among which are many species new to science. A preliminary report will be shortly submitted to the Commissioner of Fish and Fisheries. The final report will not be made until more deep-sea work has been done about the islands.

THE Congress of the International Association for Testing Materials was held at Budapest on September 9 to 14, under the presidency of Prof. L. von Tetmajer, and was largely attended by engineers from all parts of the world. The delegates present included 4 from England, 41 from Austria, 3 from Belgium, 9 from Denmark, 2 from the United States, 36 from France, 152 from Hungary, 70 from Germany, 3 from Norway, 12 from Italy, 26 from Russia, 1 from Roumania, 3 from Spain, 1 from Servia, 10 from Switzerland and 5 from Sweden. After an

inaugural presidential address and address of welcome from the Hungarian authorities, a representative of each country was elected an honorary president of the Congress, Mr. Bennett H. Brough being chosen for England and Prof. H. M. Howe for the United States. The other English and American members present were:—Sir William H. Bailey (Manchester), Mr. Bertram Blount (London), Dr. C. J. Renshaw (Ashton-on-Mersey) and Dr. R. Moldenke (New York). In addition to the various reports of committees dealing with technical problems, the following papers dealing with metals were read and discussed:—on the measurement of internal tension, by Mr. Mesnager (Paris); on the forms of carbon in iron, by Baron Jüptner (Leoben); on Brinell's researches, by Mr. A. Wahlberg (Stockholm); on the testing of metals by means of notched bars, by Mr. H. Le Chatelier (Paris), by Mr. G. Charpy (Paris) and by Prof. Belebubsky (St. Petersburg); on micrographical researches on the deformation of metals, by Mr. F. Osmond (Paris); on metallography, by Mr. E. Heyn (Charlottenburg); on the testing of railway material, by Mr. E. Vanderheyem (Lyons); and on the international iron and steel laboratory, by Prof. H. Wedding (Berlin). Several papers dealing with stone and mortars were also read, and an interesting lecture on the iron industry of Hungary was delivered by Prof. Edvi-Illes (Budapest).

Two long and highly sensational letters, entitled "A New Record of Totemism" and "The Early Man and his Stones," by the Hon. Auberon Herbert, have appeared in the *Times* of the 3rd and 7th inst. respectively, describing what he believes to be an important discovery of worked flints. His view, in brief, is that very extensive gravel beds in south Hampshire are practically entirely composed of worked flints which have been carried to their present position by man and then rearranged by water. The age and mode of formation of the gravel beds is a matter for the geologists to determine, and there is little doubt as to what they will say about the origin of the gravels. Archaeologists must decide on the question whether the specimens submitted to them by Mr. Herbert are natural forms or artifacts. Judging from the numerous instances of analogous finds the verdict will be against Mr. Herbert's hypothesis; but he may rest assured that if he produces his evidence it will receive due consideration from anthropological or archaeological experts. Mr. Herbert sees in his specimens animal and other natural forms, and arrives at the conclusion that they were "totems." Totemism, however, has too long been a "blessed word," and the time has arrived when strong protest must be made against the misuse of the term. There are many animal and plant cults in the world, and totemism is one of them; indeed it is probable that what is described as totemism among one people may be different from what is called totemism elsewhere. Should this prove to be the case the term should be restricted to practices and beliefs which are undoubtedly similar to those of the Ojibway cult. It is entirely unwarrantable to speak of every animal cult as totemism; the elucidation of primitive beliefs is rendered more difficult, one might say it is made almost impossible, by such looseness of terminology. It is not going too far to assert that whatever the stones may be they can never be proved to be totems or representations of totems.

DR. CARL LUMHOLTZ, the Norwegian explorer, who for the past five years has been travelling in the hitherto unknown regions of North-Western Mexico for the American Museum of Natural History, lectured before the Geographical Society in Christiania on September 12 and gave a description of his life and travels among the wild Indian tribes of the Western Sierra Madre, and especially among the cave-dwellers, who still live in the same primitive way as their forefathers thousands of years

ago. In order to study these interesting people he sent back the entire staff of his expedition and lived alone among them. At first the tribes objected to his taking up his abode in this way, but eventually he gained their confidence and was allowed to remain. He learnt their ways, their language and their songs, and joined in their dances. The Mexican Indians are monogamists, and lead, on the whole, a happy existence. They are very intellectual, and are, according to Dr. Lumholtz, a far superior race to their kinsmen in the United States and South America. Among many of the tribes he found a higher degree of morality than in civilised countries. Theft and many of the worst forms of disease are unknown among them. The land is held in common. Their principal food consists of Indian corn and beans. The large and interesting collection of native pottery and implements which have been brought away for the American Museum of Natural History, and the explorer's researches into the life, customs, religion, &c., of the natives, will, it is thought, throw a new light upon many hitherto unknown periods in the history and evolution of mankind.

WE have received a copy of the Meteorological Observations for the year 1900, taken at Rousdon Observatory, Devon, under the superintendence of the late Sir Cuthbert E. Peek, Bart. This valuable series of observations was commenced in 1883, as a station of the second order, and subsequently important additions have been made, including Robinson and Dines' anemometers. In addition to the usual observations, which have been regularly and carefully made, as in former years, by Mr. C. Grover, much useful experimental work has been carried on, including a comparison of rainfall at different heights and of records of different types of anemometers. A comparison of the weather experienced at the Observatory with that predicted for the district by the Meteorological Office has been made daily since 1883. The percentage of absolute success during the year 1900 amounted to 85, and shows a considerable improvement on some of the earlier years. In an appendix the average monthly and yearly meteorological results for the seventeen years 1884-1900 are given in English and French measures.

A SERIES of papers on the radiation from carbon is commenced by Mr. E. L. Nichols in the *Physical Review* for August. The object of the experiments is to measure the temperature of carbon rods rendered incandescent by the passage of an electric current, and to make spectrophotometric comparisons of the visible radiation from their surfaces with the corresponding wave-lengths in the spectrum of an acetylene flame.

A SIMPLE circular slide-rule is described by M. Pierre Weiss in the *Journal de Physique* for September. It possesses only a single graduated dial, the logarithmic scale going from 1 to 10 in 360°, but it has two needles, one pivoted inside the other, so that when the latter is revolved the former turns with it. In order to multiply  $a$  by  $b$ , one needle is placed opposite unity and the other opposite  $a$ . The needles are then revolved together until the first needle is opposite  $b$ , the second will then be opposite the reading corresponding to the product  $ab$ . To perform division or to find the fourth proportional to three given numbers by a single operation, the method is closely analogous to that with a slide-rule.

IN a recent issue of the *Proceedings* of the Philadelphia Academy, Dr. A. M. Reese describes the evolution of the nasal passages in the Florida alligator. In the same journal Mr. H. A. Pilsbry records a number of additions to the land-snail fauna of Japan.

THE following recently appeared in the *Daily Telegraph* :— " Experts in the British Museum are investigating an extensive discovery of sharks' teeth and the palates of other fish which

has been made in Goldsworth Cutting, Woking, during the excavations for the widening of the London and South-Western main line. The teeth, which were found in large numbers in the greensand formation, about 35 feet below the subsoil, are in a state of splendid preservation, and the find is regarded as an unusually interesting one." The specimens are really of Tertiary age.

IN a series of "Notes from the Gatty Marine Laboratory, St. Andrews," published in the *Annals and Magazine of Natural History* for September, Prof. M'Intosh discusses the enormous destruction of ova and fry which occurs in certain shore fishes, such as the shanny, blenny, cottus and lump-sucker (the eggs of which were recently produced to the Royal Commission on Trawling as those of the haddock). With regard to food-fishes, Prof. M'Intosh takes a hopeful view, urging that they "are in no great danger of extinction by the operations of man. These fishes have a vast area of water, which is utilised not only for the migrations of the adults, but for the spread of the pelagic eggs, larvae, post-larval forms and adolescents. Even were the inshore flat-fishes, for instance, to be reduced to such a degree that their capture would no longer be profitable, that fact would be their safeguard, for they would be left, amidst the most favourable surroundings, to augment their decimated ranks."

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcarius*) from South Africa, presented by Lieut. R. P. Crawley; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. L. H. Ellis; a Bosman's Potto (*Pexodicticus potto*), an African Civet Cat (*Viverra civetta*) from West Africa, presented by Mr. H. W. L. Way; two Lapwings (*Vanellus vulgaris*), European, presented by Mr. L. J. Coussmaker; twenty Rhomb-marked Snakes (*Trimerorhinus rhombeatus*), twenty-two Crossed Snakes (*Psemmophis crucifer*), seventeen Rufescent Snakes (*Leptodira hotamboeia*), seven Rough-keeled Snakes (*Dasyplettis scabra*), three Infernal Snakes (*Boodon infernalis*), a Lineated Snake (*Boodon lineatus*), a Smooth-bellied Snake (*Homalosoma lutrix*), an Oldham's Snake (*Chlorophis hoplogaster*) from South Africa, presented by Mr. W. A. Guthrie; eleven Tenrecs (*Centetes caudatus*) from Madagascar, a Barnard's Parrakeet (*Platycercus barnardi*), a Yellow-rumped Parrakeet (*Platycercus flaveolus*) from South Australia, a Yellow-fronted Amazon (*Chrysotis ochrocephala*) from Guiana, a Red-vented Parrot (*Pionus menstruus*), twelve Brazilian Tortoises (*Testudo tabulata*) from South America, three West Indian Agoutis (*Dasyprocta cristata*) from the West Indies, two Rollers (*Coracias garrulus*), European; two Grey Monitors (*Varanus griseus*) from North Africa, two Starred Tortoises (*Testudo elegans*), three Ceylonese Terrapins (*Nicoria trijuga*), a Bungoma River Turtle (*Emyda granosa*), five Bengal Monitors (*Varanus bengalensis*) from India, deposited; a Proteus (*Proteus anguinus*) from the Caves of Carniola, presented by Mr. G. Churchill.

#### OUR ASTRONOMICAL COLUMN.

DIAMETER OF MERCURY.—Prof. T. J. J. See has recently made a long series of determinations of the diameter of the planet Mercury, using the filar-micrometer on the 26-inch refractor of the U.S. Naval Observatory at Washington. Details of 145 observations are grouped in three series, extending over the period 1900 June 20-1901 June 11. The mean diameter deduced is

$$D = 5''.8993 \pm 0''.0080. \\ = 4277.6 \text{ km. } \pm 5.8 \text{ km.}$$

Special attention is drawn to the absence, even under the best conditions, of any markings which could be recognised with certainty.